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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XA627

Taking and Importing Marine Mammals: Taking Marine Mammals Incidental to Navy Training Exercises in Three East Coast Range Complexes

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of three modified Letters of Authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA), as amended, and implementing regulations, notification is hereby given that NMFS has made modifications to three Letters of Authorization (LOAs) to take marine mammals by harassment incidental to the U.S. Navy's training activities within the Navy's Virginia Capes (VACAPES), Jacksonville (JAX), and Cherry Point (CHPT) Range Complexes to the Commander, U.S. Fleet Forces Command, 1562 Mitscher Avenue, Suite 250, Norfolk, VA 23551-2487 and persons operating under his authority.

DATES: Effective from January 6, 2012, through June 4, 2012.

ADDRESSES: Copies of the Navy's request for LOA modifications, the LOAs, the Navy's 2010 marine mammal monitoring report and the Navy's 2010 exercise report are available by writing to P. Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD

20910, by telephoning the contact listed here (SEE FOR FURTHER INFORMATION CONTACT), or online at:

<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Shane Guan, Office of Protected Resources, NMFS (301) 713-2289 x 137.

#### SUPPLEMENTARY INFORMATION:

##### Background

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 et seq.) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking of marine mammals by U.S. citizens who engage in a military readiness activity if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization may be granted for periods of 5 years or less if NMFS finds that the taking will have a negligible impact on the species or stock(s), and will not have an unmitigable adverse impact on the availability of the species or stock(s) for certain subsistence uses, and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such taking are set forth.

Regulations governing the taking of marine mammals incidental to the U.S. Navy's training activities at the Navy's VACAPES, JAX, and Cherry Point range complexes were published on June 15, 2009 (VACAPES: 74 FR 28328; JAX: 74 FR 28349; CHPT: 74 FR 28370) and remain in effect through June 4, 2014. They are codified at 50 CFR part 218 subpart

A (for VACAPES Range Complex), subpart B (for JAX Range Complex), and subpart C (for Cherry Point Range Complex). These regulations include mitigation, monitoring, and reporting requirements for the incidental taking of marine mammals by the Navy's range complex training exercises. For detailed information on these actions, please refer to the June 15, 2009 Federal Register Notices and 50 CFR part 218 subparts A, B, and C.

An interim final rule was issued on May 26, 2011 (76 FR 30552) to allow certain flexibilities concerning Navy's training activities at VACAPES and JAX, and LOAs were issued to the Navy on June 1, 2011 (76 FR 33266; June 8, 2011).

#### Summary of LOA Request

On July 6, 2011, NMFS received a request from the U.S. Navy for modifications to three LOAs issued by NMFS on June 1, 2011, to take marine mammals incidental to training activities at VACAPES, JAX, and CHPT Range Complexes (76 FR 33266; June 8, 2011). Specifically, the Navy requested that NMFS modify these LOAs to include taking of marine mammals incidental to mine neutralization training using time-delay firing devices (TDFD) within the above Range Complexes, along with revised mitigation measures, to ensure that effects to marine mammals resulting from these activities will not exceed what was originally analyzed in the Final Rules for these Range Complexes (VACAPES: 74 FR 28328; JAX: 74 FR 28349; CHPT: 74 FR 28370). The potential effects of mine neutralization training on marine mammals were comprehensively analyzed in the Navy's 2009 final regulations for these three Range Complexes and mine neutralization training has been included in the specified activity in the associated 2009, 2010, and 2011 LOAs. However, the use of TDFD and the associated mitigation measures have not been previously contemplated, which is why NMFS believes it was

appropriate to provide these proposed modified LOAs to the public for review. NMFS published a notice proposing to modify the three LOAs on November 7, 2011 (76 FR 68734).

On March 4, 2011, three dolphins were suspected to be killed by the Navy's mine neutralization training event using TDFDs in its Silver Strand Training Complex. In short, a TDFD device begins a countdown to a detonation event that cannot be stopped, for example, with a 10-min TDFD, once the detonation has been initiated, 10 minutes pass before the detonation occurs and the event cannot be cancelled during that 10 minutes. Although in the Federal Register notice for the proposed LOA (76 FR 68734; November 7, 2011), it stated that using TDFDs is believed to have likely resulted in the death of five dolphins, further discussion with the Navy and reviewing of reports concerning the incident showed that there is no concrete evidence that more than three dolphins were killed. Following the March 4<sup>th</sup> event, the Navy initiated an evaluation of mine neutralization events occurring within the VACAPES, JAX, and CHPT Range Complexes and realized that TDFDs were being used at those Range Complexes. According to the Navy, less than 3% of all MINEX events would not use TDFD. As a result, the Navy subsequently suspended all underwater explosive detonations using TDFDs during training, and the three LOAs issued on June 1, 2011, by NMFS specifically do not cover marine mammals taken incidentally as a result of such training activities. While this suspension was in place, the Navy worked with NMFS to develop a more robust monitoring and mitigation plan to ensure that marine mammal mortality and injury would not occur during mine neutralization training activities using TDFDs.

The Navy requested that the revised LOAs remain valid until June 2012. A detailed description of the Navy's LOA modification request can be found on NMFS website:

<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

## Description of the Need for Time-Delay Firing Devices in MINEX Training

A detailed description of the overall operational mission concerning the use of TDFD is provided in the Federal Register notice for the proposed LOA (76 FR 68734; November 7, 2011), therefore, it is not repeated here.

## Comments and Responses

A notice of receipt and request for public comment on the application and proposed authorization was published on November 7, 2011 (76 FR 68734). During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission) and one private citizen.

Comment 1: The Commission recommends that NMFS and the Navy investigate the underlying cause of the high rate of non-compliance with the respective LOAs and determine why it was not detected earlier. Specifically, the Commission stated that the Navy had been using the TDFDs at the three east coast Range Complexes until the dolphin mortality incident at the Silver Strand Training Complex (SSTC), despite a clear prohibition of using such devices in the applicable LOAs from NMFS. The Commission also states that the non-compliance with this provision also calls into question whether the Navy is fully complying with the other terms and conditions of the applicable letters of authorization.

Response: The Navy has not violated any provisions of their LOAs or rules. There were no prohibitions against using TDFDs in the earlier LOAs and rules issued to the Navy. The use of TDFDs was not identified in the Navy's LOA application and the explosives used in the mine neutralization training was treated as standard underwater detonation with positive control, therefore the use of TDFDs was not analyzed during the rulemaking stage and thus the LOAs issued to the Navy did not include the prohibition of using TDFDs for mine neutralization

training. The issue of using TDFDs became known after the SSTC dolphin mortality incident mentioned above, and the Navy suspended all underwater detonation events that use those devices and worked with NMFS to come up with a more robust mitigation and monitoring plan. In the meantime, NMFS modified the 2010 LOAs that were issued to the Navy with the prohibition that no TDFDs be used for mine neutralization training, and the Navy complied with that prohibition.

Comment 2: The Commission recommends that NMFS and the Navy jointly review the full scope of the applicable regulations and letters of authorization to ensure that the responsible Navy officials are aware of, understand, and are in compliance with all mitigation, monitoring, and reporting requirements.

Response: NMFS agrees with the Commission's recommendation. NMFS and the Navy worked together closely in developing all mitigation, monitoring, and reporting measures for the Navy's MMPA authorizations and regulations applicable to training activities. In addition, draft regulations and authorizations were also sent to the Navy for review to ensure that the mitigation, monitoring, and reporting measures set forth are attainable and practicable.

Comment 3: The Commission recommends that NMFS require the Navy to conduct empirical sound propagation measurements to verify the adequacy of the sizes of the exclusion zones for 5-, 10-, and 20-lb charges and to expand those zones and the buffer zones derived from those zones as necessary, if NMFS amends the LOA as proposed.

Response: In 2002, the Navy conducted empirical measurements of underwater detonations at San Clemente Island and at the SSTC in California. During these tests, 2 lb and 15 lb net explosive weight charges were placed at 6 and 15 feet of water and peak pressures and energies were measured for both bottom placed detonations and detonations off the bottom. A

finding was that, generally, single-charge underwater detonations, empirically measured, were similar to or less than propagation model predictions (DoN 2006).

On the east coast, the Navy has conducted marine mammal surveys during mine neutralization training events during August of 2009, 2010, and 2011 as part of its marine mammal monitoring program (see Navy's VACAPES, JAX, and CHPT annual monitoring reports for further details). NMFS contacted Navy regarding the feasibility of empirical sound propagation measurement in the east coast range complexes. The Navy stated that it will explore the value of adding field measurements during monitoring of a future mine neutralization event after evaluating the environmental variables affecting sound propagation in the area, such as shallow depths, seasonal temperature variation, bottom sediment composition, and other factors that would affect our confidence in the data collected. If such data can be collected without unreasonable costs and impacts to training, the Navy will move forward in incorporating the measurements into its monitoring program for east coast mine neutralization training.

At this moment, because the modeled exclusion zones are set to be much larger than the measured and modeled zones of injury or TTS, NMFS does not believe that there is added value to conducting empirical measurements before the issuance of the modified LOAs, especially given the short time frame during which the LOA modifications will be effective. Nevertheless, NMFS would recommend the Navy conduct these measurements as funding becomes available.

Comment 4: The Commission recommends that NMFS require the Navy to re-estimate the sizes of the buffer zones using the mean average swim speeds plus at least one standard deviation for marine mammals that inhabit the shallow-water areas where TDFDs would be used, prior to amending the LOAs. The Commission states that if an animal swims at just 1 knot faster than the Navy's assumption of average swim speed at 3 knots, the Navy would have

underestimated the size of the buffer zones in 8 of the 18 scenarios presented in Table 3 of the proposed LOA (76 FR 68734; November 7, 2011; Table 4 in the current document). The Commission further supports its argument with studies from Lockyer and Morris (1987) and Mate et al. (1995), which showed that the average swim speed for bottlenose dolphins ranged from 2.6 to 8 knots.

Response: First, although the Commission's recommendation of using the mean average swim speeds plus at least one standard deviation for marine mammals warrants consideration, it is not currently possible to implement because the actual data deriving the average swim speeds and the number of samples are unknown, therefore, the standard deviation cannot be calculated. The average dolphin swim speed used in establishing the buffer zones were based on published peer-review papers (e.g., Perrin et al. (1979), Würsig and Würsig (1979), Hui (1987), and Mate et al. (1995)) instead of actual data measurements. If what the Commission means is to use the mean published average swim speeds to calculate the "among population standard deviation", other issues exist: (1) There are only a handful of published reports (four reviewed by NMFS and two additional papers by the Commission, with one reviewed by both NMFS and the Commission), so the mean of the average swim speeds plus their standard deviation reported in these five documents (among three species) would have no statistical meaning, and (2) Some of the papers (e.g., Lockyer and Morris (1987) and Perrin et al. (1979)) reported a range of the average speeds, which would not even allow for such calculations. In addition, among these reported delphinid average swim speeds (listed below in Table 1), all support the Navy's suggested average swim speed of 3 knots, except for the Lockyer and Morris (1987) paper. Therefore, NMFS considers that using the average of 3 knots



for delphinid speed is a reasonable approach to address the time-delay issue related to the use of TDFDs for mine detonation.

Table 1. Reported Dolphin Swimming Speeds

Species	Swim Speed (knots)	Source
<u>Stenella</u> sp.	0.78 – 3.70	Perrin <u>et al.</u> (1979)
<u>Tursiops truncatus</u>	3.08	Würsig and Würsig (1979)
<u>Delphinus delphis</u>	3.11	Hui (1987)
<u>Tursiops truncatus</u>	2.65	Mate <u>et al.</u> (1995)
<u>Tursiops truncatus</u>	5.4 – 8.1	Lockyer and Morris (1987)

In addition, the Navy proposed (and NMFS concurred) that an additional 200-yard buffer be added to the safety zone to provide additional protection for dolphins that may swim faster than the average of 3 knots.

Furthermore, in order to enhance the monitoring efficiency due to the enlarged buffer zones, buffer zones with a radius greater than 1,000 yards will have 2 boats, and buffer zones with a radius greater than 1,400 yards will have 3 boats or 2 boats and 1 helicopter for monitoring. While larger buffer zones may sometimes add benefits, there must also be an ability to adequately survey the buffer zone to ensure animals are spotted. Due to the type of small unit training being conducted, there are limited surveillance assets available to monitor the buffer zone during a mine neutralization event. Scheduling additional observation boats and crews involves coordination and availability of other units and degrades overall training readiness of the other unit(s) involved, which would not be practical for small training events like these. In summary, based on the above analyses and additional mitigation measured being implemented, NMFS believes the use of published average dolphin swim speed with an additional 200-yard buffer is the best current approach to establishing the buffer zones.

Finally, it is worth noting that even in the absence of mitigation, the Navy modeling suggests that zero animals will likely randomly come within the safety radius during the small

amount of time that the detonations actually occur. It is unlikely that an animal will swim into the buffer zone during the brief amount of time that it might be exposed to a detonation without first being detected by the multiple boats circling the detonation area and observing the buffer zone.

Comment 5: The Commission recommends that NMFS consider whether modifications to the LOAs alone are sufficient to satisfy the requirements of the MMPA and provide a thorough explanation of its rationale in the Federal Register notice taking final action on the proposed modifications, if it believes that regulatory modifications are not needed.

Response: The amount of incidental harassment authorized in the regulations governing mine neutralization on the three east coast range complexes was based on thorough analyses and assessment of the Navy's activities and marine mammal distribution and occurrence in the vicinity of the range complexes. As explained in the Navy's initial LOA application submitted to NMFS and subsequent TDFD LOA modification application, the Navy's Environmental Impact Statement for these range activities, and NMFS' Federal Register notices (VACAPES: 74 FR 28328; June 15, 2009; JAX: 74 FR 28349; June 15, 2009; CHPT: 74 FR 28370; June 15, 2009), the estimated exposures are based on the probability of the animals being present in the area when a training event is occurring, and this probability does not change based on the use of TDFDs or implementation of mitigation measures (i.e., the exposure model does not account for how the charge is initiated and assumes no mitigation is being implemented). The amount of harassment currently authorized and NMFS' determination of negligible impact on the stock already assume a conservative estimate of predicted harassment for these events. The enhanced mitigation measures to be implemented in the LOA modification are to balance the potential additional risks that may rise from the Navy using TDFD during the mine

neutralization training. In summary, the take limits are not expected to be exceeded with the use of TDFDs, but the additional mitigation and monitoring measures are to offset the potential risks of using TDFDs. Therefore, NMFS does not believe that further revisions to the regulation are warranted.

Comment 6: One private citizen expressed general opposition to Navy activities and NMFS' issuance of an LOA modification because of the danger of killing marine life.

Response: NMFS appreciates the commenter's concern for the marine mammals that live in the area of the proposed activities. However, the MMPA allows individuals to take marine mammals incidental to specified activities if NMFS can make the necessary findings required by law (i.e., negligible impact, unmitigable adverse impact on subsistence users, etc.), as explained in the rulemakings (VACAPES: 74 FR 28328; June 15, 2009; JAX: 74 FR 28349; June 15, 2009; CHPT: 74 FR 28370; June 15, 2009) and the proposed LOAs (76 FR 68734; November 7, 2011). The detailed analyses in these documents show that no marine mammal mortality would likely occur as a result of the Navy activities, including the use of TDFDs during mine neutralization trainings. Finally, take of marine mammals by mortality and serious injury are not authorized under these rules and regulations. Therefore, NMFS has made the necessary findings under 16 U.S.C. 1371 (a)(5)(A) to support our modification of these LOAs. Modifications to Mitigation and Monitoring Measures Related to Mine Neutralizing Training

NMFS worked with the Navy and developed a series of modifications to improve monitoring and mitigation measures so that take of marine mammals will be minimized and that no risk of injury and/or mortality to marine mammal would result from the Navy's use of TDFD mine neutralization training exercises. The following modifications to the mitigation and

monitoring measures are specific to Mine Neutralization training exercises involving TDFDs conducted within the VACAPES, JAX, and CHPT Range Complexes.

(A) This activity shall only occur in W-50 of the VACAPES Range Complex, Undet North and Undet South of the JAX Range Complex, and Mine Neutralization Box of Area 15 of the CHPT Range Complex.

(B) Visual Observation and Exclusion Zone Monitoring

The estimated potential for marine mammals to be exposed during MINEX training events is not expected to change with the use of TDFDs, as the same amount of explosives will be used and the same area ensounded/pressurized regardless of whether TDFDs are involved. This is due to the fact that estimated exposures are based on the probability of the animals occurring in the area when a training event is occurring, and this probability does not change because of a time-delay. However, what does change is the potential effectiveness of the current mitigation that is implemented to reduce the risk of exposure.

The locations selected for MINEX are all close to shore (~3 – 12 nm) and in shallow water (~ 10 – 20 m) in all three Range Complexes. Based on marine mammal monitoring during prior MINEX training activities and data from recent monitoring surveys, delphinids (mainly bottlenose dolphins) are the most likely species to be encountered in these areas. However, mitigation measures apply to all species and will be implemented if any marine mammal species is sighted.

The rationale used to develop new monitoring zones to reduce potential impacts to marine mammals when using a TDFD is as follows: The Navy has identified the distances at which the sound and pressure attenuate below NMFS injury criteria (i.e., outside of that distance from the explosion, marine mammals are not expected to be injured). Here, the Navy identifies

the distance that a marine mammal is likely to travel during the time associated with the TDFD's time delay, and that distance is added to the injury distance. If this enlarged area is effectively monitored, animals would be monitored and detected at distances far enough to ensure that they could not swim to the injurious zone within the time of the TDFD. Using an average swim speed of 3 knots (102 yd/min) for a delphinid based on Perrin et al. (1979), Würsig and Würsig (1979), Hui (1987), and Mate et al. (1995), the Navy provided the approximate distance that an animal would typically travel within a given time-delay period (Table 2). Based on acoustic propagation modeling conducted as part of the NEPA analyses for these Range Complexes, there is potential for injury to a marine mammal within 106 yd of a 5 lb detonation, 163 yd of a 10 lb detonation, and 222 yd of a 20 lb detonation. The buffer zones were calculated based on average swim speed of 3 knots (102 yd/min). The specific buffer zones based on charge size and the length of time delays are presented in Table 3.

Table 2. Potential Distance Based on Swim speed and Length of Time-Delay

Species Group	Swim Speed	Time-delay	Potential Distance Traveled
Delphinid	102 yd/min	5 min	510 yd
		6 min	612 yd
		7 min	714 yd
		8 min	816 yd
		9 min	918 yd
		10 min	1,020 yd

Table 3. Buffer Zone Radius (yd) for TDFDs Based on Size of Charge and Length of Time-Delay

		Time-delay					
		5 min	6 min	7min	8 min	9 min	10 min
Charge Size	5lb	616 yd	718 yd	820 yd	922 yd	1,024 yd	1,126 yd
	10 lb	673 yd	775 yd	877 yd	979 yd	1,081 yd	1,183 yd
	20 lb	732 yd	834 yd	936 yd	1,038 yd	1,140 yd	1,242 yd

However, it is possible that some animals may travel faster than the average swim speed noted above, thus there may be a possibility that these faster swimming animals would enter the buffer zone during time-delayed to detonation. In order to compensate for the swim distance

potentially covered by faster swimming marine mammals, an additional correction factor was applied to increase the size of the buffer zones radii. Specifically, three sizes of buffer zones are designed for the ease of monitoring operations based on size of charge and length of time-delay, with an additional buffer added to account for faster swim speed. These revised buffer zones are shown in Table 4. As long as animals are not observed within the buffer zones before the time-delay detonation is set, then the animals would be unlikely to swim into the injury zone from outside the area within the time-delay window.

Table 4. Updated Buffer Zone Radius (yd) for TDFDs Based on Size of Charge and Length of Time-Delay, with Additional Buffer Added to Account for Faster Swim Speeds

		Time-delay					
		5 min	6 min	7min	8 min	9 min	10 min
Charge Size	5lb	1,000 yd	1,000 yd	1,000 yd	1,000 yd	1,400 yd	1,400 yd
	10 lb	1,000 yd	1,000 yd	1,000 yd	1,400 yd	1,400 yd	1,400 yd
	20 lb	1,000 yd	1,000 yd	1,400 yd	1,400 yd	1,400 yd	1,450 yd

1,000 yds: minimum of 2 observation boats

1,400/1,450 yds: minimum of 3 observation boats or 2 boats and 1 helicopter

The previous mitigation measure specified that parallel tracklines would be surveyed at equal distances apart to cover the buffer zone. Considering that the buffer zone for protection of a delphinid may be larger than specified in the current mitigation, a more effective and practicable method for surveying the buffer zone is for the survey boats to position themselves near the mid-point of the buffer zone radius (but always outside the detonation plume radius/human safety zone) and travel in a circular pattern around the detonation location surveying both the inner (toward detonation site) and outer (away from detonation site) areas of the buffer zone, with one observer looking inward toward the detonation site and the other observer looking outward. When using 2 boats, each boat will be positioned on opposite sides of the detonation location, separated by 180 degrees. When using more than 2 boats, each boat will be positioned equidistant from one another (120 degrees separation for 3 boats, 90 degrees

separation for 4 boats, etc.). Helicopters will travel in a circular pattern around the detonation location when used.

During mine neutralization exercises involving surface detonations, a helicopter deploys personnel into the water to neutralize the simulated mine. The helicopter will be used to search for any marine mammals within the buffer zone. Use of additional Navy aircraft beyond those participating in the exercise was evaluated. Due to the limited availability of Navy aircraft and logistical constraints, the use of additional Navy aircraft beyond those participating directly in the exercise was deemed impracticable. A primary logistical constraint includes coordinating the timing of the detonation with the availability of the aircraft at the exercise location. Exercises typically last most of the day and would require an aircraft to be dedicated to the event for the entire day to ensure proper surveying of the buffer zone 30 minutes prior to and after the detonation. The timing of the detonation may often shift throughout the day due to training tempo and other factors, further complicating coordination with the aircraft.

Based on the above reasoning, the modified monitoring and mitigation protocols for visual observation is developed as the following:

A buffer zone around the detonation site will be established to survey for marine mammals. Events using positive detonation control will use a 700 yd radius buffer zone. Events using time-delay firing devices will use the table above to determine the radius of the buffer zone. Time-delays longer than 10 minutes will not be used.

Regarding the sizes of the buffer zones, there were two typographical errors in the Federal Register notice for the proposed LOA (76 FR 68734; November 7, 2011). On page 68738 of that Federal Register notice, it stated that “[b]uffer zones of 1,000 yds or less shall use a minimum of 2 boats to survey for marine mammals. Buffer zones greater than 1,000 yds

radius shall use 3 boats or 1 helicopter and 2 boats to conduct surveys for marine mammals.”

The notice should have stated, “[b]uffer zones less than 1,400 yds shall use a minimum of 2 boats to survey for marine mammals. Buffer zones greater than 1,400 yds radius shall use 3 boats or 1 helicopter and 2 boats to conduct surveys for marine mammals.” As indicated in Table 3, there is no buffer zone under 1,000 yds when TDFDs are used.

Two dedicated observers in each of the boats will conduct continuous visual surveys of the buffer zone for marine mammals for the entire duration of the training event. The buffer zone will be surveyed from 30 minutes prior to the detonation and for 30 minutes after the detonation. Other personnel besides the observers can also maintain situational awareness regarding the presence of marine mammals within the buffer zone to the best extent practical given dive safety considerations. If available, aerial visual survey support from Navy helicopters can be utilized, so long as it does not jeopardize safety of flight.

When conducting the survey, boats will position themselves at the mid-point of the buffer zone radius (but always outside the detonation plume radius/human safety zone) and travel in a circular pattern around the detonation location surveying both the inner (toward detonation site) and outer (away from detonation site) areas of the buffer zone. To the extent practicable, boats will travel at 10 knots to ensure adequate coverage of the buffer zone. When using 2 boats in a 1,000 yds buffer zone, each boat will be positioned on opposite sides of the detonation location at 500 yds from the detonation point, separated by 180 degrees. When using 3 boats in a 1,400 or 1,450 yds buffer zone, each boat will be positioned equidistant from one another (120 degrees separation) at 700 or 725 yds respectively from the detonation point. Helicopter pilots will use established Navy protocols to determine the appropriate pattern (e.g., altitude, speed, flight path, etc.) to search and clear the buffer zone of turtles and marine mammals.



(C) Mine neutralization training shall be conducted during daylight hours only.

(D) Maintaining Buffer Zone for 30 Minutes Prior to Detonation and Suspension of Detonation

Visually observing the mitigation buffer zone for 30 min prior to the detonation allows for any animals that may have been submerged in the area to surface and therefore be observed so that mitigation can be implemented. Based on average dive times for the species groups that are most likely expected to occur in the areas where mine neutralization training events take place, (i.e. delphinids), 30 minutes is an adequate time period to allow for submerged animals to surface. Allowing a marine mammal to leave of their own volition if sighted in the mitigation buffer zone is necessary to avoid harassment of the animal.

Suspending the detonation after a TDFD is initiated is not possible due to safety risks to personnel. Therefore the portion of the measure that requires suspension of the detonation cannot be implemented when using a TDFD and will be removed, noting that revised mitigation measures will make it unnecessary to have to suspend detonation within the maximum of ten minutes between setting the TDFD and detonation.

Based on the above reasoning, the modified monitoring and mitigation for pre-detonation observation is the following:

If a marine mammal is sighted within the buffer zone, the animal will be allowed to leave of its own volition. The Navy will suspend detonation exercises and ensure the area is clear for a full 30 minutes prior to detonation.

When required to meet training criteria, time-delay firing devices with up to a 10 minute delay may be used. The initiation of the device will not start until the area is clear for a full 30 minutes prior to initiation of the timer.

(E) The requirement in the previous LOA that “no detonation shall be conducted using time-delayed devices” was deleted as the improved monitoring and mitigation measures will minimize the potential impacts to marine mammals and greatly reduce the likelihood of injury and/or mortality to marine mammals using TDFDs.

(F) Diver and Support Vessel Surveys

The Navy recommends, and NMFS concurs with, revising this measure to clarify that it applies to divers only. The intent of the measure is for divers to observe the immediate, underwater area around the detonation site for marine mammals while placing the charge.

The modified mitigation measure is provided below:

Divers placing the charges on mines will observe the immediate, underwater area around the detonation site for marine mammals and will report any sightings to the surface observers.

(G) No detonations shall take place within 3.2 nm (6 km) of an estuaries inlet.

(H) No detonations shall take place within 1.6 nm (3 km) of shoreline.

(I) Personnel shall record any protected species observations during the exercise as well as measures taken if species are detected within the zone of influence (ZOI).

Take Estimates

There is no change for marine mammal take estimates from what were analyzed in the final rules (VACAPES: 74 FR 28328; JAX: 74 FR 28349; CHPT: 74 FR 28370; June 15, 2009) for mine neutralization training activities in all three Range Complexes. Take estimates were based on marine mammal densities and distribution data in the action areas, computed with modeled explosive sources and the sizes of the buffer zones.

The Comprehensive Acoustic System Simulation/Gaussian Ray Bundle (OAML, 2002) model, modified to account for impulse response, shock-wave waveform, and nonlinear shock-

wave effects, was run for acoustic-environmental conditions derived from the Oceanographic and Atmospheric Master Library (OAML) standard databases. The explosive source was modeled with standard similitude formulas, as in the Churchill FEIS. Because all the sites are shallow (less than 50 m), propagation model runs were made for bathymetry in the range from 10 m to 40 m.

Estimated zones of influence (ZOIs; defined as within which the animals would experience Level B harassment) varied with the explosive weights, however, little seasonal dependence was found among all Range Complexes. Generally, in the case of ranges determined from energy metrics, as the depth of water increases, the range shortens. The single explosion TTS-energy criterion (182 dB re 1  $\mu\text{Pa}^2\text{-sec}$ ) was dominant over the pressure criteria and therefore used to determine the ZOIs for the Level B exposure analysis.

The total ZOI, when multiplied by the animal densities and total number of events, provides the exposure estimates for that animal species for each specified charge in the VACAPES, JAX, and CHPT Range Complexes (Table 4). Since take numbers were estimated without considering marine mammal monitoring and mitigation measures, the additional monitoring and mitigation measures and the use of TDFD for mine neutralization training would not change the estimated takes from the original final rules for JAX (74 FR 28349; June 15, 2009) and CHPT (74 FR 28370; June 15, 2009) Range Complexes and from the interim final rule for VACAPES Range Complex (76 FR 33266; June 8, 2011).

Table 4. Estimated Takes of Marine Mammals that Could Result from MINEX

Species/Training Operation	Potential Exposures @ 182 dB re 1 $\mu\text{Pa}^2\text{-s}$ or 23 psi	Potential Exposures @ 205 dB re 1 $\mu\text{Pa}^2\text{-s}$ or 13 psi	Potential Exposures @ 30.5 psi
VACAPES Range Complex			
Pantropical spotted dolphin	4	1	0
Bottlenose dolphin	2	0	0

Clymene dolphin	2	0	0
JAX Range Complex			
Atlantic spotted dolphin	2	0	0
Bottlenose dolphin	2	0	0
CHPT Range Complex			
Atlantic spotted dolphin	1	0	0

## Analysis and Negligible Impact Determination

Pursuant to NMFS’ regulations implementing the MMPA, an applicant is required to estimate the number of animals that will be “taken” by the specified activities (i.e., takes by harassment only, or takes by harassment, injury, and/or death). This estimate informs the analysis that NMFS must perform to determine whether the activity will have a “negligible impact” on the species or stock. Level B (behavioral) harassment occurs at the level of the individual(s) and does not assume any resulting population-level consequences, though there are known avenues through which behavioral disturbance of individuals can result in population-level effects. A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A takes, the number of estimated mortalities, and effects on habitat.

The aforementioned additional mitigation and monitoring measures will increase the buffer zone to account for marine mammal movement and increase marine mammal visual

monitoring efforts to ensure that no marine mammal would be in a zone where injury and/or mortality could occur as a result of time-delayed detonation.

In addition, the estimated exposures are based on the probability of the animals occurring in the area when a training event is occurring, and this probability does not change based on the use of TDFDs or implementation of mitigation measures (i.e., the exposure model does not account for how the charge is initiated and assumes no mitigation is being implemented). Therefore, the potential effects to marine mammal species and stocks as a result of the mine neutralization training activities are the same as those analyzed in the final rules governing the incidental takes for these activities. Consequently, NMFS believes that the existing analyses in the final rules do not change as a result of revising the LOAs to include mine neutralization training activities using TDFDs.

Further, there will be no increase of marine mammal takes as analyzed in previous rules governing NMFS issued incidental take authorizations that could result from the Navy's training activities within these Range Complexes by using TDFDs.

Based on the analyses of the potential impacts from the mine neutralization training exercises conducted within the Navy's VACAPES, JAX, and Cherry Point Range Complexes, especially on the improvement on marine mammal monitoring and mitigation measures, NMFS has determined that the modification of the Navy's current LOAs to include taking of marine mammals incidental to mine neutralization training using TDFD within the above Range Complexes will have a negligible impact on the marine mammal species and stocks present in these action areas, provided that the additional mitigation and monitoring measures are implemented.

ESA

There are six ESA-listed marine mammal species, three sea turtle species, and a fish species that are listed as endangered under the ESA with confirmed or possible occurrence in the VACAPES, JAX, and CHPT Range Complexes: humpback whale, North Atlantic right whale, blue whale, fin whale, sei whale, sperm whale, loggerhead sea turtle, leatherback sea turtle, the Kemp's ridley sea turtle, and the shortnose sturgeon.

Pursuant to Section 7 of the ESA, NMFS has completed consultation internally on the issuance of the modified LOAs under section 101(a)(5)(A) of the MMPA for these activities. The Biological Opinion concludes that the Navy's training activities using TDFDs within the VACAPES, JAX, and CHPT Range Complexes are likely to adversely affect but are not likely to jeopardize the continued existence of these threatened and endangered species under NMFS jurisdiction.

#### NEPA

NMFS participated as a cooperating agency on the Navy's Final Environmental Impact Statements (FEIS's) for the VACAPES, JAX, and CHPT Range Complexes. NMFS subsequently adopted the Navy's EIS's for the purpose of complying with the MMPA. For the modification of the LOAs, which include TDFDs, but also specifically add monitoring and mitigation measures to minimize the likelihood of any additional impacts from TDFDs, NMFS has determined that there are no changes in the potential effects to marine mammal species and stocks as a result of the mine neutralization training activities using TDFDs. Therefore, no additional NEPA analysis is required, and the information in the existing EIS's remains sufficient.

#### Determination

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat and dependent upon the implementation of the mitigation measures, NMFS determined that the total taking from Navy mine neutralization training exercises utilizing TDFDs in the VACAPES, JAX, and CHPT Range Complexes will have a negligible impact on the affected marine mammal species or stocks. NMFS has issued three LOAs with modifications to allow takes of marine mammals incidental to the Navy's mine neutralization training exercises using TDFDs, provided that the improvements to the monitoring and mitigation measures are implemented.

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